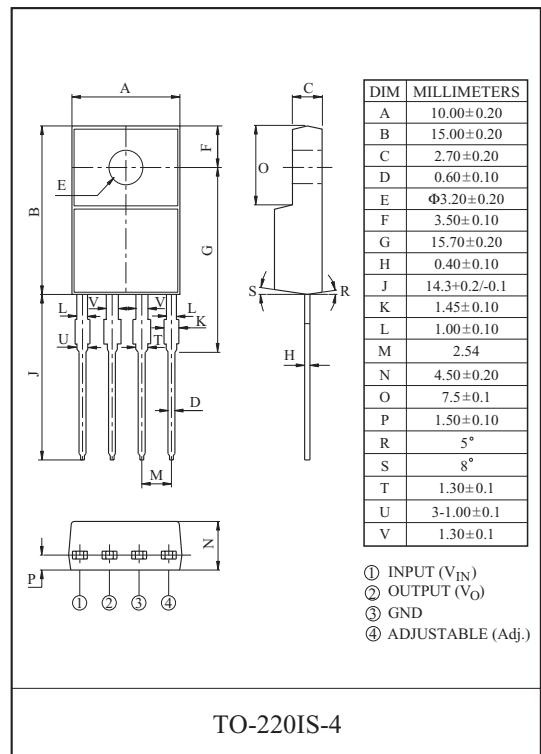


## 1A ADJUSTABLE LOW DROP VOLTAGE REGULATOR

The KIA78R00PI is a Low Drop Voltage Regulator suitable for various electronic equipments. The Regulator has multi function such as over current protection, overheat protection.

## FEATURES

- Adjustable Output Voltage (Range : 1.5~30V)
- 1.0A Output Low Drop Voltage Regulator.
- Built in Over Current Protection, Over Heat Protection Function.



## MAXIMUM RATINGS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT	Remark
Input Voltage	V <sub>IN</sub>	35	V	-
Output Current	I <sub>OUT</sub>	1	A	-
Power Dissipation 1	P <sub>D1</sub>	1.5	W	No heatsink
Power Dissipation 2	P <sub>D2</sub>	15	W	Infinite heatsink
Operating Junction Temperature	T <sub>J(opr)</sub>	-40~150	°C	-
Storage Temperature	T <sub>stg</sub>	-45~150	°C	-
Soldering Temperature (10sec)	T <sub>sol</sub>	260	°C	-

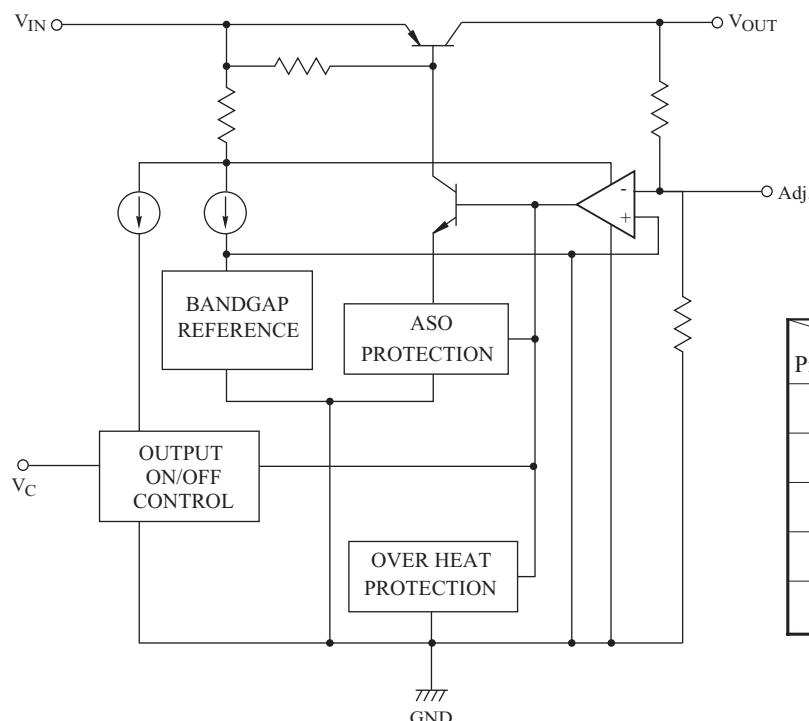
# KIA78R00PI

## ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $V_{IN}=15V$ ,  $V_O=10V$ ,  $I_O=0.5A$ ,  $R_I=390 \Omega$  (Note1 :  $V_{IN}=0.95V_{out}$  ))

CHARACTERISTIC	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Voltage	$V_{IN}$	-	4.5	-	35	V
Output Voltage	$V_O$	$R_2=84 \Omega$ to $8.7k \Omega$	1.5	-	30	V
Load Regulation	Reg Load	$I_O=5mA \sim 1A$	-	-	2.0	%
Line Regulation	Reg Line	$V_{IN}=11V \sim 28V$	-	-	2.5	%
Ripple Rejection	$R \cdot R$	$C_{ref}=0$ Refer to Fig.2 $C_{ref}=3.3 \mu F$	45 55	55 65	- -	dB
Reference Voltage	$V_{ref}$	-	1.26	1.29	1.32	V
Temperature coefficient of reference Voltage	$T_C V_{ref}$	$T_j=0 \sim 125^\circ C$	-	$\pm 1.0$	-	%
DropOut Voltage	$V_D$	$I_O=1.0A$ (Note1)	-	-	0.5	V
Quiescent Current	$I_Q$	$I_Q=0A$	-	-	10	mA

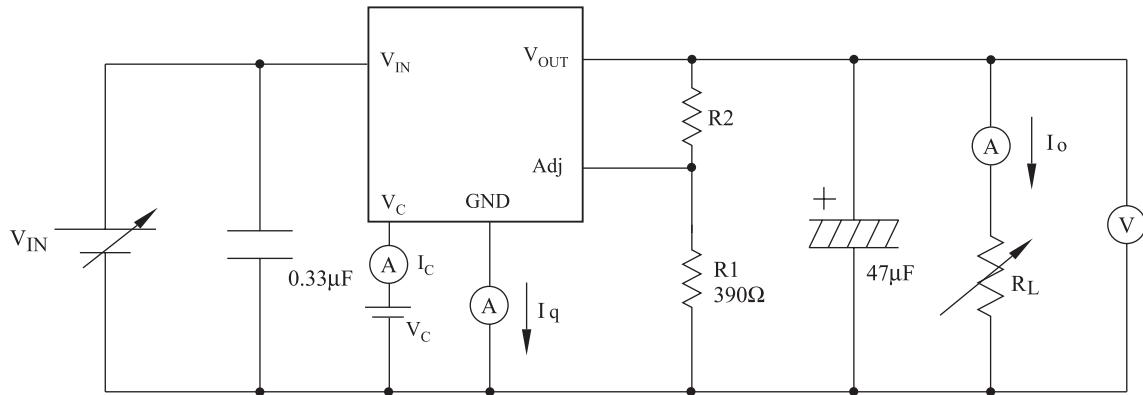
## BLOCK DIAGRAM



Pin NO	ITEM	KIA78R00PI (TO-220IS-4)
1	$V_{IN}$	
2	$V_{OUT}$	
3	GND	
4	Adj	
5	-	

# KIA78R00PI

**Fig. 1 Standard Test Circuit**



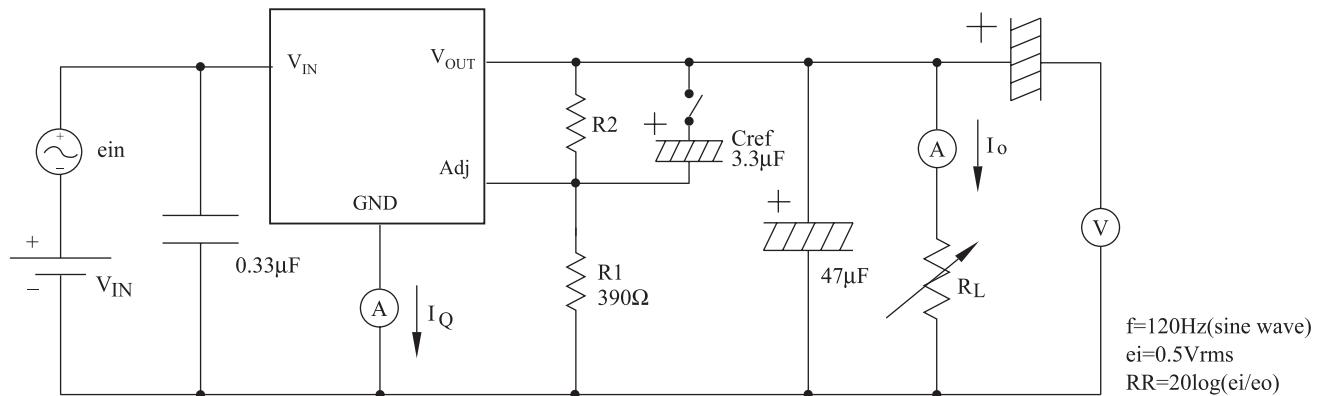
$$V_{OUT} = V_{ref} \times \left( 1 + \frac{R_2}{R_1} \right) = 1.29 \times \left( 1 + \frac{R_2}{R_1} \right)$$

$C_{IN}$  : More than 0.33μF required if regulator is located an appreciable distance from power supply filter.

You must use to prevent from the parasitic oscillation.

$C_{OUT}$  : More than 47μF. You must use the Low-impedance-type(low ESR) capacitor.

**Fig. 2 Ripple Rejection Circuit**



# KIA78R00PI

Fig. 3  $I_O$  -  $V_O$

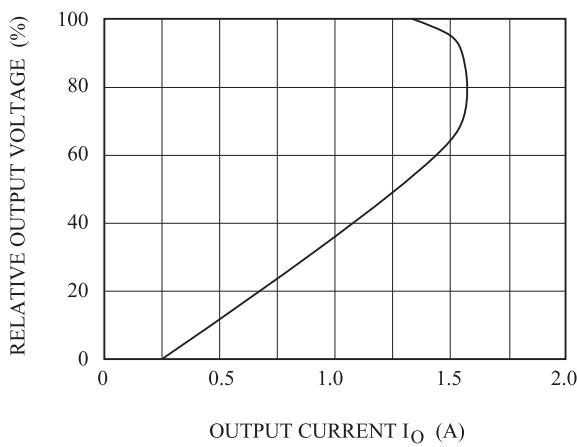


Fig. 4  $T_j$  -  $\Delta V_O$

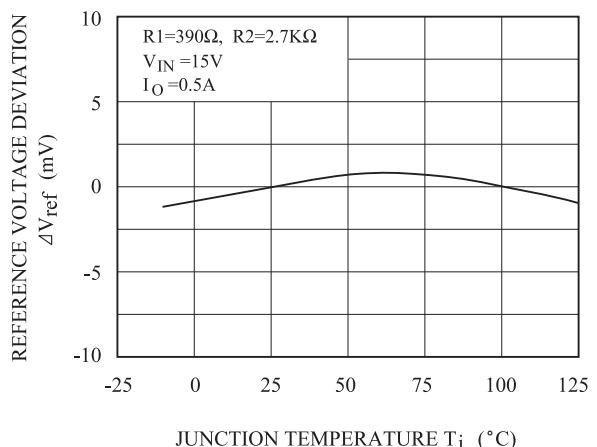


Fig. 5  $V_{IN}$  -  $V_O$

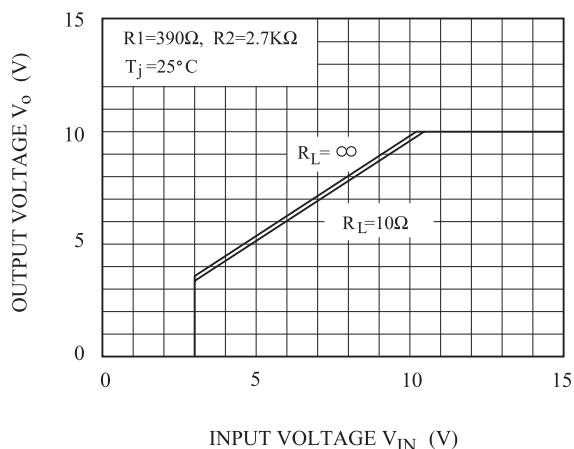


Fig. 6  $T_j$  -  $V_D$

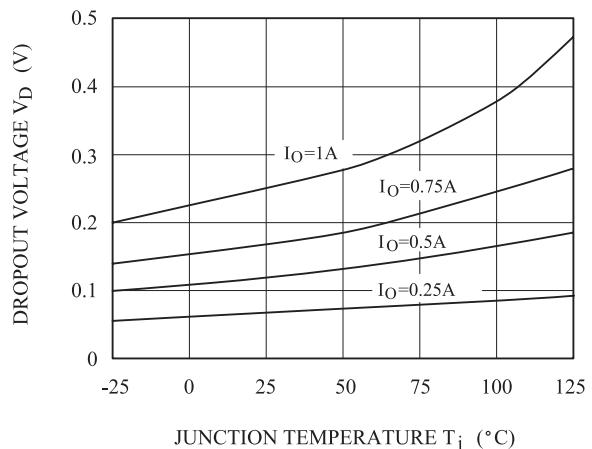


Fig. 7  $T_j$  -  $I_q$

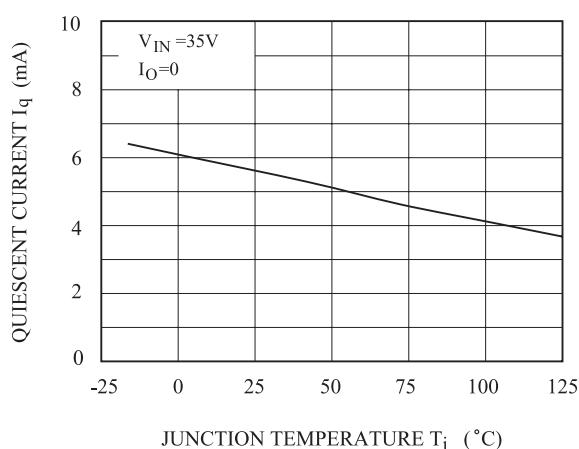
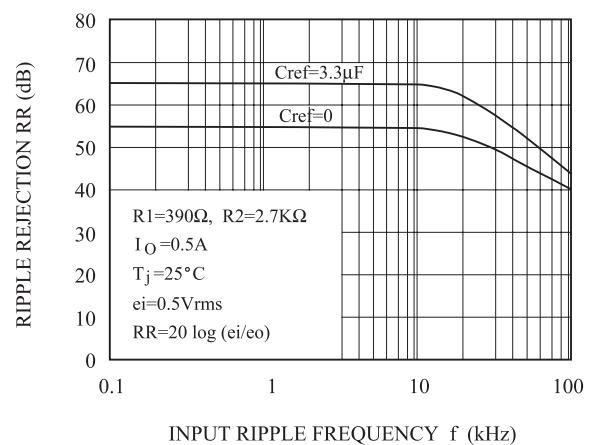


Fig. 8  $f$  - RR



# KIA78R00PI

Fig. 9  $I_O$  - RR

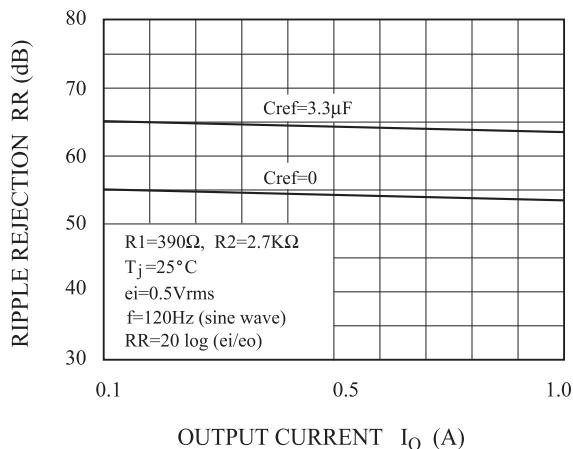


Fig. 10  $R_2$  -  $V_O$

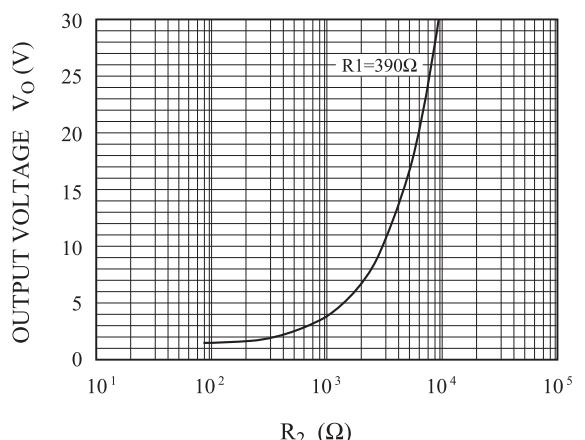


Fig.11  $P_D$  -  $T_a$  (PI-Type : TO-220IS-4)

